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Obstetrics: The Science and the Art - Part III. The Therapeutics and Surgery of Midwifery; Chapter XVI. Embryotomy

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CHAPTER XVI.

EMBRYOTOMY.

THE implements employed in Embryotomy, or those operations in which the body of the foetus is cut by the surgeon, are various. They may, however, be all comprised under the denominations of: 1st, the perforator; 2d, the crotchet; and 3d, the embryotomy forceps. In cases, very rare ones, in which decapitation of the child is required, a knife of a peculiar form is to be used. I witnessed the decapitation of a foetus forty-six years ago, in 1813, and fortunately have seen no such operation since.

Perhaps there is nothing to be met with, in the very troublesome and anxious profession of an obstetrician, more painful to his feelings than the management of a labor in which it is required to mutilate the child, to extract it from the maternal organs. It is fortunate that this odious duty does not occur very frequently; and we are indebted to the inventor of the forceps, Chamberlen, for exemption from it in the present age, in numerous instances, in which, without the important uses of that instrument, we should be compelled to resort to the perforator and the hook, which comprised nearly the sum of the instrumental resources of the ancients. We are also in modern times highly favored by a knowledge of the stethoscope and of direct auscultation, in acquiring greater certainty relative to the life of the foetus, whose state of life or death can now be accurately determined by that means; thus relieving the mind of most painful solicitude by the certainty of its death, if that event should have happened, in cases where we are compelled to apply destructive instruments for its delivery.

When the foetal head is driven into the pelvis and arrested there in consequence of disproportion of its diameters to those of the bony canal, if the arrest cannot be obviated by the hand, the lever, or the forceps, the mother may suffer so much constitutional irritation from the fruitless efforts she makes, and the agonizing pain she endures, as to fall into exhaustion, and perish with the child still undelivered; and this, not only in the case of a cephalic presentation, but also in that of

the feet, or that of the breech—in short, in all situations where the child cannot be got away through the pelvis until after it shall have been reduced in its magnitude. But even in those instances in which the woman is not threatened with exhaustion, she is liable, from the pressure of the head, to suffer inflammation or gangrene of the soft parts, which are contused by it; or she is exposed to danger of laceration of the womb itself, or of the vagina, whose consequences are greatly to be feared, and if possible averted.

Exhaustion, manifested by cessation of the pains, smallness and great frequency of the pulse, a haggard and sunken countenance, anxiety, jactitation, coldness of the extremities, profuse viscous sweats, and delirium, may come on in labors that are drawn out too long from smallness of the pelvis, or from rigidity of the soft parts; cases in which we may clearly discern the necessity of immediate delivery, to rescue the woman from impending ruin. When such signs are present, and the child is known to be dead, if the ergot and the forceps are found, on trial, to be unavailing, recourse must be had to the most speedy means of relief, to wit, the opening of the head and discharge of its contents, with a view to the collapse of the cranium. We have less of the feeling of abhorrence above mentioned, when obliged to do this operation on the dead child; but, even in that case, we feel that our acts, as physicians, may be misconstrued by ignorant bystanders; so that, even here, embryulcia is a most unpleasant duty in practice. It ought therefore to be esteemed a duty to clearly state the condition of the child, and the urgent motives for lessening the size of its head in order that it may pass—or pass with safety to the mother.

Lessening the volume of the head is effected by the introduction into one of the fontanelles or sutures, of an instrument called Holmes' perforator, the blades of which being afterwards opened, make a free incision, through which, if enlarged by a crucial cut, the cerebral contents are either extracted at once, or allowed to escape slowly under the pressure of the pains. As soon as the opening is made, it is common to push the perforator deep into the cavity of the cranium, or introduce a crotchet so as to break up the textures within, and then, seizing the head by means of the sharp hook, which is applied to any convenient situation on the outside or in the inside of the skull, to draw it through the vulva, and deliver it; after which, if the woman has not suffered too severely, she soon recovers of the effects of her preceding fatigue and distressing pains.

This is the simplest and easiest case of embryulcia, and is one that any humane practitioner would or might perform without hesitation,

upon the proper grounds for the proceeding being fully set forth before him.

Yet, notwithstanding the facility with which the operation of embryulcia may be performed, it is one so unnatural, and so shocking to the feelings of all concerned, that it ought not to be done without very satisfactory reasons for it; and in general, not without consultation and agreement with a medical brother, for it is too grave and solemn a thing to exercise this professional authority as by the *fiat* of an autocrat. In those instances in which it becomes necessary, during the life of the child, to resort to this mode of delivery, the most formal consultation ought to be regarded as indispensable; and no consultation can be supposed properly to result in such a proceeding, except upon the most urgent and clearly understood reasons for it. There are gentlemen in the profession who boast that they never have performed this operation. It may be very true; but the reason is that they resolutely decline to do their duty, which they throw upon some not more unfeeling, but more merciful and resolute brother.

There are cases of labor occurring in women with deformed pelvis, that are plainly impracticable with an unmutilated child. For example, if a woman have the pelvis occupied with an exostosis, or if the diameters of that canal are changed and spoiled by rachitis or by malacosteon, the child contained within her womb cannot escape whole *per vias naturales*. If the promontory of the sacrum comes within two inches and a half of the symphysis pubis, the child cannot pass the strait alive, because its own smallest diameter is more than three and a half inches; and, indeed, if the pelvis have three inches of antero-posterior diameter, it cannot be born alive, unless it be uncommonly small, and moreover possessed of a very incomplete ossification of the cranial bones, and great laxity of the suture lines that unite them: such a head might, by long pressure under a very powerful womb, be at length forced down through the strait, after it should have been moulded into the proper form by the force applied to it. Yet, when we come to consider that the bi-parietal diameter is 3.88 inches, we shall entertain little hope of getting the head down, in a pelvis of three inches. Though it is true that Solayrés, and Dugés, and others have been fortunate enough to meet with cases in which the head at term has been born in a pelvis of two and a half inches from front to rear, it is not to be expected that success can attend labor in a female whose pelvic deformity even approaches to two inches and a half in its smallest line of diameter. The exceptions but prove the general rule. (See *Monthly Journal Sci.*, July, 1847, for Dr. Simpson's case.)

Such a pelvis is not fit for the forceps, since it is too small for them

to be withdrawn when locked. The question must always be, in such cases, as between the perforator and crotchet on the one hand, and the Cæsarean section on the other. But this can only be considered as relative to the living child, even by the warmest advocates of the hysterotomy. Of the dead child, no question can arise as to the mode of its delivery, except that by the perforator, and whether sooner or later. The dead child must always be withdrawn *per vias naturales* if there be space through which to extract it with equal safety: but even where the child is known to be dead, we may be compelled to perform the Cæsarean operation, if we would deliver the woman at all; since deformity may reach to the degree of shutting up the passage, even against the perforator. There is, in the museum of the University of Pennsylvania, a pelvis so distorted, that the hand could not possibly have directed an instrument to the head, in a manner to enable the surgeon to open and extract it. The woman from whose remains the pelvis was taken died in the almshouse, resolutely rejecting the Cæsarean operation, and preferring to it the death which she knew to be inevitable.

The practitioner who may be in charge of a case of labor where embryulcia is indicated, must be guided by his judgment and the counsel of his medical brother as to the signs which compel him to undertake the delivery. I have already enumerated them—and they are easy to be understood. There is, in general, far more danger of the operation being deferred too long, than of its being performed too soon; since, if it be not performed in time to save the life of the mother, it would be as well not to do it at all. I know that, in uttering this sentiment, I am liable to the imputation of wantonly encouraging the use of this dreadful operation, but I wish to disclaim such an intention. Any one possessed of a mere common humanity would instinctively recoil from the performance of such an office, and no man can have read the eloquent appeals of Alphonse Leroy on this subject without feeling that he was right in advocating the cause of mercy. I hope that no man living is reasonably more reluctant than I am to use any obstetric instrument whatever; and I fear that the resort to its employment is often had very unnecessarily and rashly. But I think that, when the case under consideration arises, we ought to act so promptly and so understandingly, that we may, on the one hand, derive a perfect success from it, and on the other stand acquitted, in our own judgment and in that of others, as well as before God, from the charge of any rashness or precipitation. I shall strive, therefore, while I reiterate the opinion, to clear myself by repeating that all such cases require a medical consultation. To mutilate the child and then lose the mother,

is a real misfortune, both for the practitioner himself and for the profession, which, from such results, is in danger of falling into disrepute. Let the Student read the memoir of M. de Broqua (*Mém. sur un Accouchement Laborieux*, Paris, 1824), in order to learn what danger may be incurred by the professional man, who even, assisted by a respectable consultation, terminates a labor by embryulcia. He will find that that gentleman, though evidently guided by the purest lights of science, and by a good and clear conscience, was led into the greatest straits and anxiety by the unfortunate termination of the case. I wish that every Student might be as cautious as M. de Broqua in regard to the consultation, under such trying circumstances.

It is to be understood, then, that where all other instrumental means fail—where, after due reflection upon the circumstances that hinder the delivery, a conclusion is formed that the mother and child must both perish, unless the latter be withdrawn by the assistance of instruments that mutilate it—where the Cæsarean operation is inadmissible, or rejected by the patient, we have the remaining and very sure resource of the operation of embryulcia, or embryotomy; and we can venture to encourage and cheer the unhappy and suffering female with the prospect of speedy relief by its means.

I have had occasion to feel, in common with many other practitioners, how dangerous an instrument is the sharp crotchet. The force to be spent on it, in extraction, is so great that, should the point slip or tear out from the bone, it is always jerked downwards several inches, and is very apt to catch in some of the soft parts of the mother, which it ploughs up and lacerates. How easy it would be to lacerate the vagina, or even the lower part of the womb, by the slipping of the point; and nevertheless, he who uses the crotchet, and is perfectly aware of the risk, is under the necessity of running that risk whenever he takes the instrument in his hand to deliver with it. There is no part of the cranium to which it can be applied without some hazard of its losing its hold. This is more apt to occur, from the faulty manner in which the crotchet is generally made, namely, with an iron and not a steel point. With a point of soft iron there is no real security; because the point soon becomes dull, and does not maintain its hold of the bone. The point ought to consist of well-tempered steel, and should be made as sharp as possible—but very much bevelled, and quite short.

There is a vast variety of instruments prepared for the delivery of the head in cases of deformed pelvis. Dr. Davis, of London, has invented a great number of them, some of which I have had occasion to use, but with less satisfaction than I expected to have, from the

strong recommendation bestowed upon them. I am now well convinced that a great apparatus of this sort is not at all necessary, as I think will be conclusively shown in the sequel of this article, in which I shall describe an instrument capable, with the occasional aid of one sharp crotchet and a perforator, of effecting the delivery of the head in the most restricted pelvis from which delivery is at all possible.

As this volume is not designed to be drawn out to a great length, I am constrained to make many of the remarks that I could otherwise find occasion to offer, more brief than is compatible with a copious detail of the subjects. But, notwithstanding this necessity, I am induced to give at length the history of a case of labor in a deformed pelvis that was under my notice in the year 1831. It was drawn up by my friend Dr. George Fox, now surgeon of the Pennsylvania Hospital, and published in the *North American Medical and Surgical Journal*, vol. xii. p. 484. It may, perhaps, serve sufficiently well to set forth the difficulties and embarrassments with which such cases are surrounded, and the success of it, probably the most difficult obstetric operation ever successfully performed in this country, may encourage those who shall hereafter have the misfortune to contend with similar cases, to hope for success in the midst of the greatest obstacles. I consider it more instructive than any merely didactic remarks that I could compress into these pages.

Case of Embryulcia for Deformed Pelvis.—"On Tuesday, June 14, 1831, I was called, about seven A. M., to see Mrs. R——, in labor with her first child: this is stated to have commenced about one A. M. The pains, as are usual in the commencement of labor, very feeble, short, and at about ten minutes' interval. Upon examination per vaginam, the projection of the sacrum was immediately felt. Not, however, suspecting the deformity which was subsequently found to exist, this was not at the time particularly attended to; the os uteri was sufficiently dilated to admit the finger to feel the protruding membrane. I was struck with the form of the sacrum: the rectum being very much distended with feces, I thought it might, in part, be occasioned by this. Directed *ol. ricini* one ounce, which was taken immediately. At noon found, upon examination per vaginam, that the membranes had ruptured, the head presenting: she was not aware at what time the waters had escaped. In the evening, the rectum being unloaded by the operation of the oil, I made a more minute examination, and was sensible of great deformity of the pelvis, though not to the extent we afterwards ascertained, the pains not being at all active. As it was late, I determined not to ask the assistance of

my medical brethren till the following morning; therefore directed an anodyne (which I subsequently ascertained was not taken, from her dislike to laudanum, and fear of its retarding her labor), and left her for the night. Was called up about one o'clock the next morning, her pains being more frequent and stronger; found the os uteri rather more dilated, and the external parts very rigid, preventing an accurate examination of the pelvis. I remained with her some hours; subsequently called upon Dr. James, late Professor of Midwifery, &c., in the University of Pennsylvania, who met me in consultation at half-past eight A. M. In consequence of the rigidity of the soft parts, we found it impossible to make any satisfactory examination; we therefore concluded it best she should be bled, and take an anodyne—that we would meet in the afternoon: she was accordingly placed erect in bed and bled to incipient syncope, which was after losing about fifteen ounces; twenty drops of laudanum were soon after given. In the afternoon Dr. James again saw her: from as accurate an examination as we were capable of making (for the external parts still continued rigid, though somewhat relaxed since the bleeding), we came to the conclusion that there were not at most three inches in the antero-posterior diameter; that laterally there was rather more room, on the left more than on the right; the posterior lip of the os uteri was swollen and succulent, forming a cushion in front and a little below the projection of the sacrum; the head was presenting to the left side—its exact position could not be determined. On account of the unusual interest of the case, Drs. Meigs and Lukens were invited to attend; Dr. James, not feeling quite well, did not meet us that night. The result of the examination of these gentlemen was, that there was not more, if as much, room at the superior strait as we supposed; they coincided with us in the opinion that it was impossible the child should be born alive *per vias naturales*: our next object, therefore, was to ascertain whether or not the child was living; this was rendered certain by the application of the stethoscope; the pulsations of the child's heart were distinctly perceived, whilst the placental souffle was also very evident; the pains continued as they had been most of the day, recurring every four or five minutes. We remained with her some hours, when we ordered her an opiate, and agreed to meet at four A. M. The result of this meeting was, that, as the proper means of proceeding were of such immense importance, further advice should be had, and that we should meet at half-past eight o'clock A. M. Dr. Physick was called on, but was confined to the house by sickness; Dr. Dewees was also called for, but was absent from the city. At half-past eight A. M., Dr. James met us, Dr. Hewson being

added to the consultation: it was agreed, as before stated, that it was impossible the female should be delivered of a living child *per vias naturales*; the question then was, whether the child should be sacrificed to save the mother's life, or an attempt made to save both mother and child. It was concluded, as the strength of our patient was good, her pulse only eighty-four and strong, as there were no symptoms of constitutional irritation, no injury would result from a few hours' delay; we therefore separated to meet at twelve M.

"The consultation was held at the appointed hour. By this time, after repeated and the most accurate examinations that the case admitted of, we were unanimous in the opinion that there were not more than two inches in the antero-posterior diameter, most probably only one inch and three-quarters. The different methods of proceeding which have been proposed in similar cases were duly and maturely considered, namely, the division of the symphysis pubis, the Cæsarean operation, and cephalotomy: the first was considered inapplicable to the present case; the Cæsarean operation was thought to be attended with so much risk to the mother as almost to be necessarily fatal, some of the most distinguished surgeons being decidedly opposed to its performance. Dr. Physick, who was called upon in the course of the morning by Dr. Meigs and myself to ask his opinion on the propriety of this operation, was decided and positive in his opposition to it. Under the weight of such authority, the idea of the Cæsarean operation was abandoned. It was therefore concluded, after the most mature deliberation, and upon viewing the case in all its bearings, that the life of an imperfect being (for it was again ascertained that the child was living and apparently vigorous) should be sacrificed to save the life of a wife and daughter, and that the operation should be immediately commenced, by opening the child's head, breaking up the brain, and allowing some hours to elapse before attempting extraction. At my request, with the approbation of our colleagues, Dr. Meigs consented to perform it. Drs. James and Hewson, having professional engagements, were at this time obliged to leave us, to meet again at six o'clock P. M. Preparatory to the operation, the rectum was unloaded by an enema, the urine drawn off by a catheter, and an anodyne administered; her pulse was one hundred and four. The consent of the patient, her husband, and friends, having been obtained, she was placed at the foot of the bed (which had previously been adjusted), the hips being on the edge, so that the perineum was perfectly free, an assistant supporting each leg. Dr. Meigs then took his seat directly opposite; made another examination preparatory to beginning the operation. After having some time carefully examined, he called

me, and subsequently Dr. Lukens also, to make another examination, the result of which was that the operation of cephalotomy, if not altogether incompetent to the delivery, would be attended with as much risk to the life of the mother as the Cæsarean operation: it then appeared to us impossible that the cranium should be removed and the base brought through the superior strait, without the most violent exertions and great danger of lacerating the cervix uteri, vagina, &c.; that, taking this view of the case, it was better to call our colleagues again together, at as early an hour as possible, to reconsider the propriety of performing the Cæsarean operation: the child was again ascertained to be alive.

"Accordingly, at five P. M. we again met. Dr. J. Rhea Barton at this time saw our patient. Our first object was to ascertain respecting the life of the child, and upon applying the ear and the stethoscope, no pulsation was perceptible in any part of the uterine region; it was then unanimously agreed (the female not having felt the child for two or three hours) that it was dead: there was now no further hesitation as to the propriety of cephalotomy, which was immediately performed by Dr. Meigs, who employed the utmost assiduity and care in the management of the operation, on whose skill and unwearied attention the success of it is mainly dependent. To him I am also indebted for the following account of the difficulties, &c., which were experienced in the accomplishment of the delivery of the child.

"The woman being conveniently placed on her back, with the perineum projecting beyond the edge of the bed, and the legs and feet properly supported by an assistant on each side, I took my seat for the purpose of proceeding with the first part of the operation, the perforation of the cranium.

"A suture crossed the pelvis from front to rear, but its edges were overlapped, and could afford no facilities for the operation. This suture was the right leg of the lambdoidal, as was afterwards ascertained.

"With Holmes' improved perforator, I endeavored to penetrate the solid bone in the centre of the strait, but, owing to the narrowness of the passage, and the constant interference of the os uteri, the lips of which were nearly in mutual contact antero-posteriorly, I dared not to give to the instrument that rotatory or drill-like motion which was necessary, for without such a movement it was impossible to make any progress, as the head rose upwards and rolled freely in the superior basin whenever any considerable pressure was applied by the perforator, though the womb seemed to be pretty firmly contracted at the same time.

“Finding this mode of proceeding unsafe for the woman, I begged permission to leave her a few minutes in order to procure an instrument better adapted to the purpose in hand. Accordingly, Mr. Rorer furnished me with a large trocar, and having guided it with two fingers to the proper situation, and kept it securely by retaining the fingers in contact with the head, I was able gradually to drill a hole through the bone, the head being pressed from above against the strait by Dr. Lukens. Two other perforations were made near to the first one, in the same cautious manner; after which, I again introduced Holmes' scissors, and, having opened them, found that I had made an incision of about an inch and a half in length. Through this a slender blunt-hook was introduced into the cavity of the cranium, and the brain very freely broken up.

“The poor woman, who was already much exhausted by many hours of labor, now took an anodyne and was left to her repose, in order that the medullary matter might be gradually pressed out and the cranium allowed to collapse so as to come more in reach of the instruments.

“At ten o'clock P. M., I again met Drs. Fox and Lukens, and the patient being disposed as before upon her back, I introduced a crotchet into the cavity of the cranium, and spent some time in extracting the medullary substance, not much of which seemed to have been expressed during our absence; the head still continued lying upon the superior strait, except a portion of the hind head, which was pressed down towards the excavation to the left of the promontory, where there appeared to be the largest space.

“Having removed a considerable quantity of the cerebral substance, I fixed the tooth of the crotchet into the cranium, and guarding it on the outside with a finger, exerted a very great amount of force, which had not the least effect in drawing it lower down.

“It soon became evident to me, from several trials of this kind, that no exertion of mere strength could be of any avail to drag away the head, and that, if it was to be delivered at all, it must be piecemeal: but, as the child had been dead only a few hours, and its skull bones were still firmly united to their inner and outer membranes, it will be readily conceived that the removal of the bones was a most difficult matter, not only on account of the firmness of their connections, but also on account of the narrowness of the passages, the great hardness of the skull, and the great danger of wounding the parts by the slipping of the crotchet, which, under the circumstances, could be best applied on the interior of the skull; and from the swollen and succulent state of the lips of the os uteri, whose inner surfaces were

now in close contact, and presented to the touch the idea of a long fissure instead of preserving a round or oval form : last and not least, the perineum was so strong and unyielding, that the greatest inconvenience arose from its pressing the fingers against the arch of the pubis with such force, and by long continuance so painfully, that no one could endure for any great length of time to keep up the necessary extension.

“ ‘Being possessed of one of Dr. Davis’s osteotomists, I expected to derive great advantages from its employment in the case, and accordingly introduced it with the view of cutting away portions of the bone; but the constricted state of the parts rendered it impossible to make use of it consistently with a humane regard to the safety of the patient.

“ ‘Having ascertained, then, by fair experiment, that mere force could do nothing in the delivery, I resolved to pursue the intention of breaking up the head by means of the crotchet; and it was with great fatigue to the woman that I picked out altogether about as much as would equal the size of one of the parietal bones, the portions consisting of fragments of the right parietal and part of the frontal bone.

“ ‘Finding, towards morning, that the progress of the operation was exceedingly slow, I went out and procured a pair of straight tooth forceps, with which I could take a firm hold of the bone and twist off portions, which, after they were broken away, often took a good while to separate from their adhering membranes.

“ ‘At four o’clock the woman was so much fatigued that we agreed to give her an anodyne draught, and leave her to recover strength by means of a few hours’ rest.

“ ‘The attempts at extraction had now continued from ten o’clock P. M. until four A. M., and I think the whole of the bone removed would not much exceed in quantity one parietal bone at full term. I believe it was impossible to proceed with greater rapidity, and I often admitted a doubt whether I should be able to deliver her before death should come to her relief.

“ ‘Throughout the day, on Friday, the attempts at extraction were repeated, in presence of the gentlemen last named, and also of Drs. James and Hewson, who became fully satisfied that no greater progress could at present be made, considering the circumstances of the woman.

“ ‘Early in the afternoon, symptoms of fever became very manifest; the pulse rising to one hundred and twelve strokes in the minute, with considerable firmness and volume; this state of the circulation being coincident with a distressing eructation, partaking somewhat of the character of singultus, and a great distension of the abdomen, as well

as of the womb itself, from gases extricated within them. She complained also of great soreness of the belly, on which account she had it bathed frequently with cold vinegar and water, leaving the surface exposed to the air, which was a great solace to her.

“ ‘In order to counteract this new state of things, she was bled six ounces, and took a portion of castor oil.

“ ‘Dr. James, who had witnessed in the morning the difficulty with which the extraction of portions of the cranium was effected, was good enough to supply me with a complete set of Dr. Davis’s craniotomy forceps, and returned to the house in the afternoon to our assistance. These instruments were applied, but they were incapable of effecting so much as even the straight tooth forceps. The teeth of the instrument could not be made to penetrate the skull, although most accurately adjusted; and notwithstanding the handles were brought so nearly together, that the style on the one handle went quite to the bottom of the socket in the other, every attempt to extract with them resulted in the slipping of the bone out of the gripe of the instrument; a proof at once of the hardness of the bone, and of the impossibility of bringing it down in its then condition.

“ ‘Putrefaction now rapidly advanced, as indicated by the odor of the discharges, and my only hope for the escape of the patient rested on the opinion that she might be supported a few hours, until the softening of the tissues should enable me to draw down larger portions of bone by admitting of the pericranium and dura mater being peeled off with a finger-nail, while the bone should be secured, and drawn down with the tooth-forceps or the crotchet.

“ ‘But such was the unpromising state of affairs that the poor creature resolutely refused to make any further effort to escape, saying she knew that she must die, and would rather die than exert herself any further, and she begged in the most piteous tones that all further attempts to deliver her should be abandoned, yet expressing her thanks for the efforts that had been already made.

“ ‘She was at times slightly delirious. After explaining to her the increased facility which began to exist from the rapid decomposition of the foetus now going on, and endeavoring to reassure her with a promise to deliver her in the course of the night, she was again left to rest three or four hours under an anodyne draught. During the whole period that has now been spoken of, the anterior lip of the os uteri was behind the triangular ligament of the pubis, and the posterior one lay down beneath the promontory, and strangulated, as it were, or buttoned by the part of the head that now laid on the strait and partly within it; yet so swelled that their inner surfaces con-

tinued nearly in contact, except when parted by the introduction of the fingers.

“The perineum seemed to have acquired no disposition to relax, notwithstanding all the handling to which the parts had been subject; and, excepting that the bones were more easily detached now than before, no greater comfort or facility was enjoyed by the operator than at the commencement.

“At ten P. M. I again met Drs. Fox and Lukens, and the patient, after much entreaty and argument, resigned herself unwillingly to the further prosecution of our attempts to deliver. The remains of the head was still high up, but some of the broken edges came lower down. I got hold of a piece that descended behind the pubis, and with the tooth forceps pulled it downwards, detaching the membranes as it advanced, and found that it consisted of all the remainder of the right parietal bone. I next got away nearly the whole left parietal, and afterwards with the crotchet removed first the right, and then the left orbital portion of the os frontis, which was all that remained of that bone. I then got away with the crotchet and forceps the right superior maxillary, and afterwards the left superior maxillary bone. I subsequently twisted off the greater part of the broad portion of the os occipitis, and the squamous parts of the temporal bones; so that I had nothing left now but the base of the skull and the lower jaw, which latter I left as a point on which to exert the tractions that were soon to be required.

“If the estimate made by all the gentlemen, that the strait was not more than two inches in its antero-posterior diameter, should prove correct, I was fearful of meeting some difficulty in bringing the base of the skull, which was two and a half inches, through it; but when I had reduced the head so as to leave nothing more than the base of the skull and the lower jaw, I fixed a blunt hook into the latter, and, with a finger to antagonize it, drew the mass down towards the point of the coccyx, and had the satisfaction to find that it was got quite through the strait. My hand being now introduced into the vagina, I got a firm hold of the neck, and with the exertion of the greatest strength, gradually brought the button-like remainder of the head out at the vulva, while the point of the thorax, of course, was entering the narrow pass. The head was delivered at a quarter after one o'clock, and having succeeded in effecting the most difficult and dangerous part of the operation, we gave her some ergot: then fastening a twisted towel round the neck of the foetus, I renewed the extractive efforts, which in twenty minutes enabled me to deliver the shoulders, and in twenty minutes more, the hips—the child being completely

withdrawn at five minutes before two o'clock, which was forty minutes after the head was delivered.

"I found that, under the stimulation of the ergot, she was enabled to bear down very strongly, considering her exhausted state; and at all events, the chief object of its exhibition was secured, namely, a firm contraction of the womb, and an effectual separation of the placenta, which came into the os uteri soon after the delivery.

"Large quantities of gas of the most putrid odor followed the extraction of the child, showing the enlargement of the womb, before spoken of, to have been owing to its extrication by the putrefactive processes going on in the uterine cavity.

"The cord was shrunk and black, and the placenta, which was likewise black, and so filled with air as to crepitate under the fingers, was so horribly noisome that it was scarce possible to endure the stench during the requisite handling of it. No blood followed the placenta.

"The body was soft and putrid, being completely emphysematous and crepitating like the placenta. The cuticle was peeled by the pressure and friction.

"The child was rather above the medium size.

"After washing the poor creature with a sponge dipped in claret and tepid water, and making her as dry and comfortable as possible, she got an anodyne and was left to rest, being unable to speak above a whisper, and with a pulse feeble, but beating only one hundred and two strokes per minute.

"The whole difficulty in delivering a child through so contracted a pelvis can scarcely be conceived of by one who has not been engaged in such an operation. The constant and perplexing apprehension of injuring the mother, either with the instruments employed, or with the sharp and ragged edges of the bones which must be withdrawn, and sometimes violently broken off with the sharp tooth of the crotchet, involves the operator in the most painful and unremitted attention and watchfulness, which alone, when long continued under compulsion, is real torture. The confusion also in the parts, arising from the ragged remains of the scalp and the inner and outer membranes of the cranium blending themselves, as it were, with the swollen lips of the os uteri quite in mutual contact, and covering and concealing the bones, is a source of great embarrassment, where those fibrous tissues retain so much firmness and compactness.

"Doubtless, could we have known that the woman would have been able to bear the fatigues of labor so long, we should have deferred the efforts at extraction for twenty-four hours after the perforation

of the head; but such was not the opinion to be gathered from the actual phenomena.

"It has been seen that no great loss of time took place, after the softening of the tissues rendered it possible to break them up with some facility, whereas the process previously was exceedingly slow and tedious. The perforation was deferred as long as possible, which saved us from the dreadful and cruel operation of cephalotomy in a living foetus. The child died of long-continued pressure.'

"June 18th (Saturday), nine A. M. Our patient says she feels quite comfortable; had some sleep after we left; pulse one hundred and twelve, rather more feeble; skin moist; tongue slightly furred. Clean linen, &c., was put on her, and she was moved up in bed. The bladder was emptied by the catheter; fomentations with flaxseed mucilage directed to be applied to the vulva; the most perfect rest and quiet strictly enjoined; as diet, arrowroot and oatmeal gruel, tea and toast.

"Evening. Remains much the same; bladder again emptied; mucilages continued; an anodyne to be given at ten P. M., if at all restless.

"19th, nine A. M. Passed a comfortable night; pulse ninety-four; skin pleasant; tongue slightly furred; lochia almost natural; free from pain; slight soreness over pubes to left side; directed warm brandy to be applied over soreness, a Seidlitz powder to be given, and repeated, if necessary; continue other means.

"Evening. Medicine not having operated, an enema of warm flaxseed mucilage was directed, and an anodyne at bedtime.

"20. Rather restless in the early part of the night; enema operated freely; feels very comfortable; no pain; pulse seventy-six; skin pleasant; tongue continues slightly furred; countenance good; spirits cheerful; continue as before.

"23d. Our patient continues to do well, usually rests well at night; free from pain, although the soreness in uterine region continues; secretion of milk copious; feels so comfortable that she has taken an infant to nurse; pulse rather more frequent than natural; tongue clean and moist; bowels costive; passes urine without difficulty—the catheter was used three times daily till last evening, when it was found to be unnecessary; lochia serous; directed ol. ricini one ounce. Mucilages to vulva to be continued, mucilaginous injections per vaginam; continue diet, and perfect rest in horizontal position.

"From this time our patient continued rapidly to improve; in three weeks from the time of her delivery, was so well as to be permitted

to go down stairs, and in a short time resumed her ordinary avocations.

"The subject of the preceding case is a native of Ireland, aged about twenty-two years, of small stature, not exceeding four feet and a half; is stated to have been a healthy child till her third year, when she received an injury by a fall, after which she was unable to stand or walk for two or three years; at the expiration of this time she regained her strength, and was subsequently considered an active child. Upon examination, we found the femur and tibia of each extremity very much curved, forming a considerable arch forward; at the lower part of the spine, there was a cavity sufficiently large to admit the hand corresponding with the promontory of the sacrum internally; the bones of each arm partook of the general disease. It was evident she had in early life labored under rickets."

Such is the history of Mrs. R.'s labor by my friend Dr. Fox. It was the most difficult case I have had during a long career. I hope the account above given may serve to instruct the Student better than any mere didactics could do. The case taught me one useful lesson, viz., that the crotchet, or *uncus*, which was for many centuries the woman's instrument, is a detestable thing; and that a better one was wanted. That better one I learned to supply; and in doing so, I have made a valuable contribution to our art.

In all cases where the diameters of the pelvis have been so much diminished by rachitis or mollities ossium as to render the descent of the foetal head impracticable, it has been the universal custom either to perform gastrotomy, or to lessen the size of the cranium by evacuating its contents, and then extract by means of the sharp crotchet. The method last spoken of is, perhaps, a good one, where the diminution of the pelvic passages is not too considerable: nevertheless, we find, upon reference to the records, that a great many women have been victims in such untoward labors, owing, measurably, to the violence done to the soft parts during the forcible extraction of the head, insufficiently reduced in size to admit of its transmission with safety to the mother—and probably in no less degree to the wounds that have been inflicted by the slipping of the crotchet.

The firm bony structure, composing the base of the foetal skull, is nearly two inches and a half in its transverse or smallest diameter; mere excerebration, therefore, cannot be regarded as furnishing a good security against fatal contusions from the forcible extraction of such a body from a pelvis whose smallest diameter is not exceeding two inches in length. Such a body as the base of the skull must, in order

to pass through such a pelvis, present itself in an inclined attitude, or with a dip; but this dip or inclination can be only imperfectly communicated to it whilst all the bones of the cranium retain their connection with each other. To enable such a base to pass downwards safely, the skull must be taken to pieces, and those pieces removed in succession. In some instances, this successive ablation of the cranial bones has been effected by the crotchet, the point of which was used to pick out the bones, sometimes in portions not larger than the finger nails; as, for example, in Elizabeth Sherwood's labor, impressively narrated by Dr. Osborne. Those who have perused that account will remember the extreme perplexity of that practitioner, and the infinite pains he took in his anxiety to avoid injuring her with the crotchet. He could not get the base of the cranium down until he had removed all the rest of the head.

Having had occasion to observe the difficulties and perplexities arising from labor in deformed pelvis, as they occurred in Mrs. M. R., the case above related, whom I have now delivered in two accouchements, I venture to lay before my professional brethren the impressions I derived from observing and conducting those two labors.

There is reason to believe that no other female has ever been safely delivered in this country, under the disadvantages of a pelvis measuring only two inches from sacrum to pubis, which, by the judgment of persons of the highest claims to confidence, is the extent of Mrs. R.'s case. I speak this, however, under liability to correction. All the gentlemen then consulted, agreed that the diameter was as above mentioned.

Her second accouchement took place in the month of June, 1833, the child having reached the full term of utero-gestation, an event which I greatly deprecated, having vainly urged, with the concurrent advice of Dr. Dewees, the operation for inducing premature delivery.

The experience I had acquired in delivering her in the first labor convinced me that the crotchet was not to be relied upon in her case; not only because of the danger from contusion in extracting the skull, and from wounds made by the point of the crotchet, but also from the loss of time requisite for picking out the head bit by bit. The patient had almost fallen a victim to exhaustion in the first labor.

In reflecting upon the facts that had occurred in 1831, I found that the problem about to be solved in the second labor was not, a head being retained above a pelvis too small to transmit it, to extract said

head—but the question was, to extract said head with the smallest loss of time, and least possible risk to the mother. I had *already ascertained* that the Cæsarean operation would not be submitted to.

I supposed that the head might be four inches in its bi-parietal diameter, and I knew that the plane of the pelvis was only two inches. Under such circumstances, the vertex will not present, but the crown of the head will be the presenting part: but since the cranium cannot recede farther than is necessary to bring it in close contact with the posterior part of the mother's abdomen, there will be two inches of the head lying upon the plane of the superior strait, and two other inches projecting in front of the symphysis pubis; or, in other words, the crown of the head will repose upon the top of the symphysis pubis—part of the head being behind, and part in front of that bone.

There is a very important principle in the management of such a case, which is, that all that part of the cranium which lies in contact with the mother's back, is perpendicular to the opening of the strait, and may, when the skull has been opened, be seized with a straight forceps or pliers, like that represented in the engraving, Fig. 127;

Fig. 126.

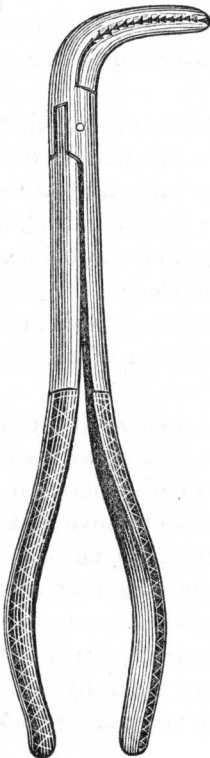


Fig. 127.

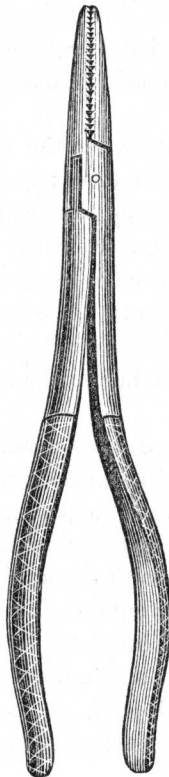
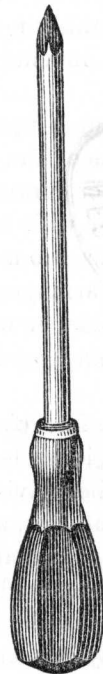


Fig. 128.



whereas, all that part of the skull that lies horizontally over the opening, can be taken hold of with a curved forceps or pliers, Fig. 126. Long before the occurrence of Mrs. R.'s second labor, I caused the proper instruments, Figs. 126, 127, and 128, to be prepared by Mr. John Rorer, the eminent surgeon's instrument maker. Aided by means of this apparatus, I encountered but little difficulty in delivering this patient, whose first accouchement had cost me so much toil and anxiety. The invention is my own. I published it soon after the event spoken of, in the *Baltimore Med. and Surg. Journ.*, and it is now known and used in this country as my embryotomy instruments. Neither Mulder nor any other author has described or proposed it. I look upon it as a most important contribution to the Operation in Midwifery. In a great majority of the cases, it wholly supersedes the crotchet, and mitigates the danger of the embryotomy operation in a remarkable manner. I am glad to believe that it has got into a very general use in this country, and I hope it will in the end entirely supersede the most detestable of instruments, the sharp crotchet.

I may properly be allowed to express the surprise which I experienced in finding my just claim to the invention of this most useful instrument treated without due regard, in quarters from whence the greatest liberality might have been hoped for in acknowledging the authors and inventors of things that contribute to the perfection of our art.

I have found, upon applying the test of practice, that when the thin portions of the cranial structure are taken hold of, either with the straight or curved forceps, they can be broken up with great ease, and removed with sufficient celerity; so much, indeed, that a head may be reduced to a very small remainder in a short time. I believe that if early arrangements are made for delivering the patient by this method, no danger will exist of exhaustion or excessive constitutional irritation being produced before the extraction of the foetus can be completed.

From the foregoing remarks, it seems to be very clear that the practitioner, in undertaking to deliver a patient with excessive distortion of the pelvis, ought to proceed to his operation with a full understanding that, after perforation, he is to remove all the posterior parts of the presentation with the straight pliers, and all the anterior and lateral ones with the curved pliers; making attempts, from time to time, to draw the head down, as he finds reason to believe that it is sufficiently broken up and collapsed. Such are my views of the mode that ought to be adopted. I, at least, am fully of opinion that Mrs. R. could not have been rescued by me, had I relied only upon

the crotchet for her delivery: with my embryotomy forceps, I should not hesitate to promise to deliver speedily in a pelvis of two inches.

It is proper to observe that the female constitution suffers less in the first hours of labor, in which the head cannot engage, than in those wherein the head sinks *low* into the excavation. This depends, in part, upon the well-known principle, that the contractions of the womb are violent and powerful in proportion as that organ becomes smaller or more condensed. If the head becomes arrested in the excavation, and particularly after having wholly escaped from the uterine cavity, it is urged with great power upon the tissues, which resist its further descent. Under such circumstances, constitutional irritation is rapidly developed; whereas, under the more lenient exertions of the uterus, while the entire foetus is still contained within its cavity, not only is the impulsion of the head against the resisting tissues far more moderate, but during the intervals between the pains the pressure is suspended. Hence a woman remains long in labor with little constitutional disturbance, in the kind of cases I am discussing. These observations are illustrated, and their truth confirmed, by reference to some of the most celebrated examples of such labors which are recorded in the books.

Whenever, therefore, a woman who is known to have an impracticable pelvis, has fallen into labor, and in whom the Cæsarean operation is rejected—if the perforator is to be resorted to, it should be applied as soon as possible, in order that, the child having ceased to exist, all the facilities derivable from the incipient decomposition of the foetus may be enjoyed. The firmness and cohesion of its soft parts are so much lessened by maceration in an elevated temperature, equal probably to 99° , that the extraction of the pieces of bone becomes comparatively easy. I should, therefore, in such difficult cases, recommend that all attempts to deliver should be delayed, if possible, for many hours after the perforation of the head. This recommendation is founded on what I have experienced of difficulty in getting out the portions of bone after I had broken them up, when I made the attempt antecedently to the occurrence of signs of decomposition. The patient can meanwhile be quieted with anodynes, and supported with light nourishment, and, if needful, may, by venesection and cold drinks, be kept tolerably free from vascular disturbance during the whole period of such delay as may be deemed advisable.

The engraving, Fig. 128, shows the form of the perforator that I employed in Mrs. R.'s case. It is a trocar or drill, ten inches in length from the handle to the point. I recommend it to the attention of the Student as a good instrument for making the perforation in

those cases where he can by no means find a fontanel or suture. He ought to notice that, in very great deformity of the pelvis, the lips of the os uteri, which will descend lower than the plane of the superior strait, will be brought so close together as quite to touch each other, and, therefore, he will not be able safely to use the ordinary perforator as a drill—the rotatory motion would wound the mutually touching lips. But such a drill as Fig. 128 is devoid of this objection. I was obliged to make use of such means of penetrating the skull in Mrs. R.'s case, since no suture was discoverable, and the common Smellie's scissors could not be made to perforate the solid bone; any direct pressure causing the head to roll or move upwards, and any rotatory or drill-like motion with it, being impossible without great danger of wounding the lips of the os uteri. The same cut exhibits both the straight and curved pliers. They are eleven inches in length; the gripe is serrated, and the sides of the mandibles are rounded, in order that they may not pinch any tissues except those intended to be included in the bite, which, on account of the serræ, is very sure and strong.

I learned, after the events above described, that this patient again became pregnant; that the child presented the breech, which would make delivery *per vias naturales* absolutely impossible; that she was under the care of Dr. Nancrede, of this city, and was safely delivered of a living child by means of the Cæsarean operation, performed by Professor Gibson, of the University of Pennsylvania, assisted by the late Dr. Beattie, Dr. Nancrede, and others. In a subsequent or fourth pregnancy, I saw her, the history of which case was again drawn up and given to the public, in the *American Journal of the Medical Sciences*, by Dr. George Fox, to whom I am indebted for the relation already above given to my readers, and from whose interesting "*Account of a Case in which the Cæsarean Section, performed by Dr. Gibson, was a second time successful in saving both mother and child*," I here cite a portion of the account, with a view to make it more extensively known by means of this volume.

As Dr. Fox's paper is partly occupied with the preceding histories, I shall commence at p. 17 of his statement:—

"Toward the latter end of August last, Mrs. R. called on me, and stated she had nearly completed the seventh month of pregnancy, and was desirous that I should again attend her: this I agreed to, upon condition that she would consent to the performance of any operation which should be deemed most advisable. Dr. Meigs kindly consented to attend with me.

"Premature labor, in her then advanced state of pregnancy, we

considered would be attended with as much difficulty, and much greater danger to the patient, than at the full period.

"Under the impression that the Cæsarean section would be most proper, we endeavored to prepare her system for this operation, should it be concluded upon, by a regulated diet, such as would be least stimulating, attention to her bowels, &c.: accordingly, for some weeks previous to labor, her diet was restricted chiefly to milk and farinaceous articles.

"On Sunday, November 5, 1837, I was sent for by Mrs. R. about five o'clock A. M. On my way to her house, I stopped for Dr. Meigs. We found her laboring under a good deal of mental excitement, with a pulse of 116; countenance anxious and pallid; and apparently in a much more unfavorable situation than in either her first or second accouchement. Her pains had commenced about three hours previous to calling upon us; they were slight, recurring at an interval of about ten minutes; upon an examination per vaginam, the os uteri was found pretty well dilated, swollen, and succulent, as in previous labors; the head presenting to the left side of the pelvis; the membranes had been ruptured. Upon inquiry, we learned that on the evening of the Friday previous there had been a considerable discharge of water from the vagina, which continued throughout the following day; but, as it was unattended with pain, she had not thought it requisite to send for us; this discharge was not produced by any exertion on her part. After remaining with her some time, finding that her pains were not urgent, we concluded to meet at nine o'clock, and invite Professors Gibson and Hodge to join us in consultation.

"9 A. M. Met Drs. Meigs, Gibson and Hodge. We found our patient much the same as when we left her, excepting that the pains were rather more urgent and frequent. Upon an examination of the case in all its bearings, we determined to advise the Cæsarean section, as best under the circumstances. I accordingly stated to the patient our views of her case, and after some little hesitation obtained her consent to the performance of this operation: previous to which, upon an examination of the abdomen, we were struck with the complete anteversion of the uterus; the old cicatrix was dark-colored, hard, and puckered, about five inches in extent; adhesion had apparently united the integuments and uterus for a space of four or five inches, from near the pubis up towards the umbilicus.

"We now ascertained, by applying the ear to the uterine region, that the child was living. Our patient's bowels having been opened by an enema, and her bladder emptied, she was placed upon a table protected by a mattress, on her back, with her hips at the edge, and

the operation immediately performed by Dr. Gibson, in the presence of Drs. Meigs, Hodge, Norris, C. Bell Gibson, and myself. Dr. Norris and myself making firm pressure upon the sides of the abdomen to prevent protrusion of the intestines, Dr. Gibson commenced by making his incision with a scalpel, through the integuments, muscles, &c., extending from an inch and a half below the umbilicus, nearly down to the pubis, directly through the old cicatrix: the uterus was found connected with the integuments by strong adhesions, for a space of about four inches; the incision into this organ was made near the fundus, and extended down five or six inches; that portion which was adherent was much attenuated, being scarcely one-fourth of an inch in thickness. To ascertain the extent of these adhesions, Dr. Gibson with his scalpel dissected up the integuments on one side, until a knuckle of intestine protruding satisfied him of their extent, which might be about half an inch.

"When the section of the uterus was completed, the placenta was seen immediately under the line of incision, and partially detached by the separation of the lips of the wound. Dr. Meigs, standing on the left of the patient, now introduced his left hand towards the right side of the womb, displacing the placenta no more than was necessary during the exploration, yet detaching a considerable portion of it, as it filled the wound in the organ; he first extricated the left foot and hand, which were found near each other; the breech soon followed, succeeded immediately by the shoulders, and lastly by the head, after a few moments of resistance, by the contracting edges of the cut, which grasped the neck of the child, and the hand of the operator, with great force. The placenta was soon after removed through the incision, and the cord tied and cut: the hemorrhage from the uterus was at first considerable, but ceased upon the contraction of that organ, after the removal of the child and placenta. The external wound was brought together by six sutures (introduced from within outward), and adhesive strips, and a compress placed over it; a broad band, to support the abdomen, was now applied around it; the pressure of its sides, to prevent protrusion of the intestines, was continued until the external wound was closed.

"The child thus born was a boy of good size, but in an extremely feeble state: some time elapsed before perfect respiration was established, but happily the efforts of Dr. Meigs were completely successful, and all anxiety on its account ceased.

"Our patient bore the operation well, scarcely murmuring; in fact, she says, she suffered but little more than with one labor pain, her pains usually being uncommonly severe. Her position was not al-

tered, excepting that her lower limbs were now supported by another table. The pulse immediately after the operation was 96, just before 112. She is enjoined to lie perfectly still, not on any account to move; to be permitted to take nothing but small portions of barley water; and, in case there is much pain, a teaspoonful of the following: R. Sulph. morphia gr. ij; aquæ ʒi. M. ft. sol.

"Soon after the operation, Messrs. J. Forsyth Meigs and Skelton arrived; these gentlemen assiduously devoted themselves to our patient during the first five days and nights, so that, had any unfavorable symptom appeared, we should have had immediate notice.

"1½ P. M. Feels quite comfortable; after-pains very slight; pulse 80.

"4 P. M. Pulse 88; has taken one teaspoonful of morphia solution. 10 P. M. Met Dr. Meigs. Pulse 88; skin pleasant; gentle moisture; tongue clean and moist; some flatulence; not much soreness; after-pains moderate; urine drawn off by the catheter, six ounces; directed solut. morphia to be given every three hours if there is much pain, and a small portion of lime-water occasionally for the flatulence.

"6th, 10½ A. M. Met Drs. Meigs, Gibson, and Hodge. Mrs. R. passed a restless, uneasy night; was unable to sleep, though not in pain; took a dose of morphia at 11½ P. M., and another at 5 A. M., also lime-water twice. Her pulse is 85, and soft; skin pleasant; slight distension of abdomen, without any increase of soreness; urine by catheter five ounces, of natural appearance. 1½ P. M. Symptoms all favorable; pulse 88. 4 P. M. Pulse 92. 8½ P. M. Met Dr. Meigs. Pulse 94; skin and tongue moist and pleasant; countenance good; no expression of anxiety; considerable tympanitis; complains much of flatulence; no after-pains; lochia free and natural; urine by catheter ten ounces. At this time, a catheter was introduced into the rectum, which caused the discharge of a large quantity of gas, rendering her much easier, and completely relieving the tympanitis. Directed a tablespoonful of the following mixture to be given every two or three hours: R. Bicarb. potassæ ʒij; sulph. morphia gr. ss; aquæ menthae p. ʒvj. M. ft. sol.

"7th, 10 A. M. Met Drs. Meigs and Gibson. Our patient had a very good night; slept comfortably, without an opiate; pulse 78, and soft; countenance good; respiration natural; skin pleasant; tongue slightly furred, but moist; urine by catheter eight ounces. 4 P. M. Pulse 82; no pain or tenderness; has slept through the day; expresses herself as feeling comfortable. 8½ P. M. Pulse 84; no return of tympanitis since the introduction of the catheter into the rectum last evening; urine by catheter eight ounces; continued mixture.

"8th, 10 A. M. Rested well all night; secretion of milk natural; the infant was put to the breast during the night; pulse 100: skin pleasant, moist; tongue slightly furred, moist; urine by catheter eight ounces; wound was examined without removing dressings; suppuration is commencing; there has been throughout a slight oozing of bloody serum; she is this morning removed to another bed. 2 P. M. Pulse 92; secretion of milk increased so much as to cause some uneasiness to her; breasts are directed to be well drawn. 8½ P. M. Pulse 92; breasts relieved by drawing; urine by catheter ten ounces.

"9th, 10 A. M. Slept soundly all night; appears very comfortable; pulse 97; skin pleasant, moist; secretion of milk abundant; lochia natural; urine by catheter eight ounces. 6 P. M. Pulse 96; skin moist; abdomen flaccid, free from all pain or tenderness; no flatulence; urine by catheter eight ounces; directed the mixture carb. potassæ to be omitted; she had taken it occasionally, on account of flatulence, since the evening of the 6th; to-night, is permitted to take arrowroot gruel; has been restricted to small portions of barley-water until this time.

"10th, 9 A. M. Slept comfortably; having some return of flatulence, took two doses of potash mixture in the course of the night; relished gruel; external organs were washed with weak wine and water, much to her relief; pulse 104; skin moist; urine by catheter eight ounces. 1 P. M. Pulse 100; wound dressed for the first time; it extends from half an inch above the pubis to one and a half inches from the umbilicus; adhesion has taken place at the upper and lower ends; discharge slight, bloody, dark-colored; at the upper end of the cicatrix from former operation, on the right side of the incision, it is slightly inflamed, of an erysipelatous appearance, and ulcerated, for the space of two inches; I removed a stitch from this point, which seemed to be a source of irritation, also one from the upper end; washed the parts and applied fresh adhesive strips, leaving a sufficient space for the free escape of pus; a piece of lint, spread with cerate, and bandages were then applied; she complained of no pain or fatigue. Bowels not having been moved since the operation, an enema of warm flaxseed mucilage is directed; breasts, which are somewhat troublesome, to be well drawn; the child would nurse, but from the mother's position it is difficult and fatiguing; consequently, we rarely put it to the breast, having from the first had a wet-nurse for it. 6 P. M. Pulse 100; skin pleasant; no pain; all her symptoms are most favorable; urine by catheter ten ounces; enema not having operated, another to be administered.

"11th, 9½ A. M. Slept well, but in consequence of some pain in

the evening, caused by the enema (which operated freely), she took two doses of morphia solution; pulse 96; tongue less furred, moist; urine by catheter eight ounces; abundant secretion of milk; no unfavorable symptom; slight dark-colored discharge from wound; fresh cerate applied; asks for increased diet; is to be allowed the soft part of six oysters and a biscuit, in addition to the gruel. 6 P. M. Pulse 96; urine by catheter six ounces.

"12th, 10 A. M. Rested well; took one dose of morphia; pulse 98; skin pleasant; has passed water twice through the night without the catheter; the wound looks well, healing; inflammation about the old cicatrix much diminished; I removed three more stitches, and applied fresh adhesive strips to lower parts of it; diet, milk, eggs, and oysters.

"13th, 10 A. M. Pulse 96; no pain; skin natural; tongue clean; slept well; wound looks well; removed the last suture, and applied fresh dressings.

"15th, 10 A. M. Has slept well for the last two nights; pulse 96, soft and pleasant; skin and tongue natural; countenance good; very cheerful; spirits throughout have been excellent. Wound looks well; adhesion perfect above and below; is filling up rapidly; inflammation of right edge subsided; suppuration moderate, lighter color; lochial discharge has ceased. This morning, for the first time, she complains of her position, which has been altogether upon her back; upon examination, a small slough (size of a cent) is discovered upon the sacrum; inquiry had frequently been made upon this point, but the fear of being moved induced her to conceal the pain and soreness until this time; her position is now being changed to the side, hips being protected by adhesive plaster; a poultice of bread and milk to be applied to slough; diet as before. 5½ P. M. Much more easy since change of position; pulse 92; has for the last two days suckled her infant.

"17th, 10 A. M. Pulse 84; bowels were opened yesterday by an enema; slough separating, superficial, does not complain of it; wound looks healthy; suppuration slight.

"25th. Has been very comfortable since last report; no pain or tenderness; pulse 88; wound nearly closed, a small opening merely remaining about the top of the old cicatrix; the discharge from it very slight; bowels being confined, she is requested to take *ol. ricini* ʒj; to-day is permitted to sit up in the bed.

"We have conceived it unnecessary to head each daily report, 'Met Drs. Meigs and Gibson,' we having continued to meet regularly during the first week; after which time, Dr. Gibson saw her occasion-

ally, during the progress of the case, as convenience or inclination dictated; Dr. Meigs continued in regular attendance some time longer.

"December 26. Mrs. R. has continued perfectly well; soon after date of last report, was permitted to leave her bed; the slough on the back soon separated, and caused but little inconvenience; the incision in the abdomen has healed, with the exception of a small fistulous opening, which is occasionally touched with lunar caustic; her diet has for some time past been generous.

"February 21, 1838. The fistulous opening heretofore noticed continued a source of annoyance till the 10th inst., since which time it has been entirely closed; the cicatrix is now complete, and looks healthy.

"*Remarks.*—Our patient had a better 'getting up' than many females after an ordinary accouchement; her sufferings after the operation were slight; indeed, in twenty days from the day of its performance she sat up; and, for some days previous, constantly nursed her infant. The adhesions connecting the uterus and abdominal parietes in front were so extensive, as almost to have permitted the performance of the operation without necessarily opening the peritoneal sac; very much diminishing its dangers. It may be worthy of notice that, nine months subsequent to the former operation, during lactation, the menstrual discharge returned, healthy and natural in every respect. During the progress of the case, the patient was visited by many of our medical friends.

"The infant has grown finely, not having had an hour's sickness since birth."